

P 001 248 US/HG

Claims:

- 5           1.     A node (10) in an optical communication network, said node being  
connected a transmission path for carrying multiple traffic data  
channels including wavelength multiplexed channels carried in first  
wavelength band and at least one service channel associated with said  
wavelength division multiplexed channels and carried on at least one  
10           further wavelength separate from said wavelength band, said node  
including  
a set of first filter elements (120, 130) for adding at least one of said  
wavelength division multiplexed data channel wavelengths to said  
transmission path and/or dropping at least one of said wavelength  
15           division multiplexed channel wavelengths from said transmission path  
(120, 130),  
an extraction element (100) for dropping said at least one service  
channel wavelength from said transmission path, said extraction  
element being arranged upstream of said first set of filter elements, and  
20           a combining element (140) for adding at least one service channel  
wavelength to said transmission path, said combining element being  
arranged downstream of said set of first set of filter elements,  
characterised in that  
said extraction and combining elements (100, 140) are adapted to drop  
25           and add, respectively at least one second wavelength band in addition to  
said at least one service channel wavelength, and passively relay said  
first wavelength band. said second wavelength band being separate  
from said first wavelength band and carrying at least one optical traffic  
data channel.

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2. A node as claimed in claim 1, characterised in that said second wavelength band carries non-wavelength-division-multiplexed traffic channels.
- 5 3. A node as claimed in claim 1, characterised in that said at least one service channel wavelength and said second wavelength band are arranged on the same side of the wavelength spectrum relative to said first wavelength band, wherein said extraction element (100) and said combining element (140) drop and add, respectively all wavelengths on  
10 the side of the spectrum containing said service channel wavelength and second wavelength band.
4. A node as claimed in claim 1, characterised by splitting means (110) arranged to receive optical signals from said extraction element (110) and to separate said service channel wavelength from said second  
15 wavelength band.
5. A node as claimed in claim 1, characterised by coupling means (150) arranged to feed optical signals to said combining means (140) and to couple said service channel wavelength with said second wavelength  
20 band.
6. A node as claimed in claim 4, characterised in that said splitting means (110) are directly connected to said coupling means (150) for relaying  
25 signals carried on said second wavelength band from said splitting means to said coupling means.
7. A node as claimed in claim 1, characterised in that said first wavelength band is centred around 1550nm and said second wavelength band is  
30 centred around 1300nm.

8. A node as claimed in claim 7, characterised in that said service channel is carried at 1510nm.

5 9. An optical communications network for carrying a first wavelength band carrying wavelength division multiplexed optical data channels and a second wavelength band carrying at least one optical service channel associated with said wavelength division multiplexed channels, and including optical nodes (10) connected to a transmission path (20),  
10 each node (10) having a first set of add/drop elements (120, 130) for adding and dropping optical data channels carried in said first wavelength band and second add/drop elements (100, 140) for adding and dropping, respectively, channels carried in said second waveband, wherein said second drop element (120) is arranged upstream of said  
15 first set of add/drop elements and said second add element (140) is arranged downstream of said first set of add/drop elements, characterised in that said communication network carries a third wavelength band carrying optical traffic data, wherein said second add/drop elements are arranged to add/drop at least said third  
20 wavelength band in addition to said second wavelength band.

10. A network as claimed in claim 9, characterised by splitting means (110) arranged to receive optical signals from said second drop element (100) and to separate said second wavelength band from said third  
25 wavelength band.

11. A network as claimed in claim 9, characterised by coupling means (150) arranged to feed optical signals to said second add element (140) and to couple signals carried on said second wavelength band with  
30 signals carried on said third wavelength band.

12. A node as claimed in claim 10, characterised by a bypass path for said third wavelength band directly connecting said splitting means (110) to said second add element (150).